Intussusception in Adults

R. J. STECKLER, M.D., A. SOURIAL, M.D., D. BASKETT, M.D., I. SCHAFFNER, M.D., AND V. DIDIO, M.D., *Thousand Oaks*

■ *Three cases of intussusception in adults were observed within a period of six months in a small general hospital. All the patients were over 65 years old and all were admitted to hospital with intermittent cramping abdominal pains. None appeared to be in acute distress. In all three, body temperature, pulse rate and hemogram were within normal limits. Diagnosis was made preoperatively after barium enema studies. Bowel resection with end-to-end anastomosis was done in all three cases, in two because of gangrenous bowel. The site of intussusception was jejunojejunal in one case, ileocecal in another and colorectal in the third; and the cause in all cases was tumor, benign in two cases, malignant in one. The patients recovered uneventfully except for incisional abscess and diarrhea of seven days' duration in one. In a review of literature it was found that the clinical features in these three cases closely paralleled those of other cases of adult intussusception reported in this country.*

INTUSSUSCEPTION IN ADULTS is not frequently encountered or reported in the medical literature. Because of its deceptive clinical manifestations and the high incidence of associated pathologic changes, it differs a great deal from intussusception in children. Unless promptly diagnosed and surgically repaired, the condition often is associated with morbidity and even mortality.[1] Frequently a malignant lesion is a further complicating factor.[2]

Incidence

That intussusception in adults, although uncommon, is not rare is evidenced by the admission of three patients with this condition in less than six months to a 65-bed general hospital serving a population of 40,000. MacNab[3] in 1948 estimated that 4.5 percent of cases of intussusception were in adults. In 1949 Wangensteen[4] reported that approximately 75 percent occur in children under two years of age. Colter and Cohn[1] noted that 1,330 cases had been reported between the years 1892 and 1961. Roper[5] calculated that one case of adult intussusception per 100 surgical beds should be encountered every 12 to 16 months. With the increase of government assistance health programs and with more aggressive surgical treatment in the aged population, it is expected that more cases in adults will be observed.

Etiology

In this country adult intussusception is most often due to an organic lesion, usually tumor and frequently malignant,[2] although this association was not observed by several investigators in Korea[7] and Western Nigeria.[8] Other relatively frequent

From the Conejo Vallejo Community Hospital, Thousand Oaks.
Submitted revised 22 July 1968.
Reprint requests to: Conejo Valley Community Hospital, 384 Erbes Road, Box 1155, Thousand Oaks 91360 (Dr. Steckler).

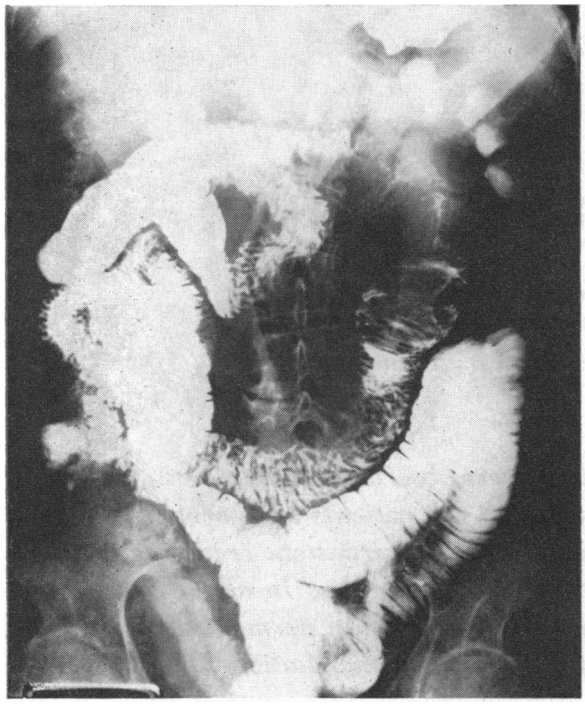

Figure 1.—Jejuno-jejunal intussusception due to small bowel tumor (benign).

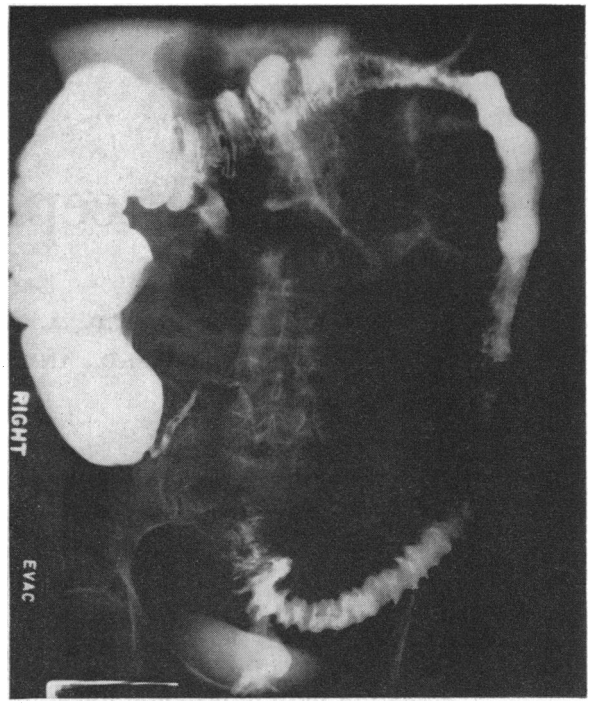

Figure 2.—Ileo-colic intussusception due to small bowel tumor (benign).

causes are Meckel's diverticulum and nonspecific inflammatory processes. Twelve of 96 cases in one series[2] were idiopathic (as compared with 95 percent in children).[1,3] In only six of the 12 could intussusception be reduced. Two factors seem necessary for production of intussusception—a relatively rigid segment of bowel (made so by tumor, inverted diverticulum, or edematous bowel secondary to inflammation) and a mobile segment long enough to permit telescoping.[9,10] Polypoid and pedunculated tumors are particularly inclined to intussuscept. In children the location of the intussusception is ileocecal in 65 to 90 percent of cases, whereas in adults approximately one-third are in the small bowel, one-third are ileocecal and one-third are in the colon.[2]

Summary of Cases

CASE 1.—A 70-year-old Caucasian woman was admitted to hospital 28 February 1967 with a history of colicky upper abdominal pain following ingestion of food. The pain occasionally was relieved by emesis. Taking only liquids tended to avoid painful episodes. There had been weight loss of about 50 pounds in the preceding year. On examination the patient appeared to be in no acute distress. The rectal temperature was 37.5°C (99.6F), the pulse rate 86, respirations 20 per minute and blood pressure 160/90 mm of mercury. The abdomen was soft and slight tenderness was noted in the right upper quadrant. No masses or organs were felt. Results of laboratory studies were within normal limits.

X-ray studies of the upper gastrointestinal tract done 3 March 1967 revealed a large sliding esophageal hiatus hernia and evidence of partial obstruction in the proximal jejunum. A small bowel series showed intussusception of a tumor in the jejunum, causing incomplete obstruction of the small bowel. At operation a jejunojejunal intussusception was found about 60 cm distal to the ligament of Trietz, led by a polyp 5 cm in diameter. The intussusception was reducible but segmental resection of the jejunum along with the polypoid lesion was deemed advisable. Pathologic sections were characteristic of inflammatory fibrous polyp. The postoperative course was uneventful.

CASE 2.—A 78-year-old Caucasian woman was admitted to hospital 14 June 1967 with a history of rather sudden onset of abdominal discomfort beginning a week before. She had passed several loose stools of normal color and twice had vomited bile-stained gastric contents. The episode subsided within 24-hours but three days later she began having cramping abdominal pains and passed sev-

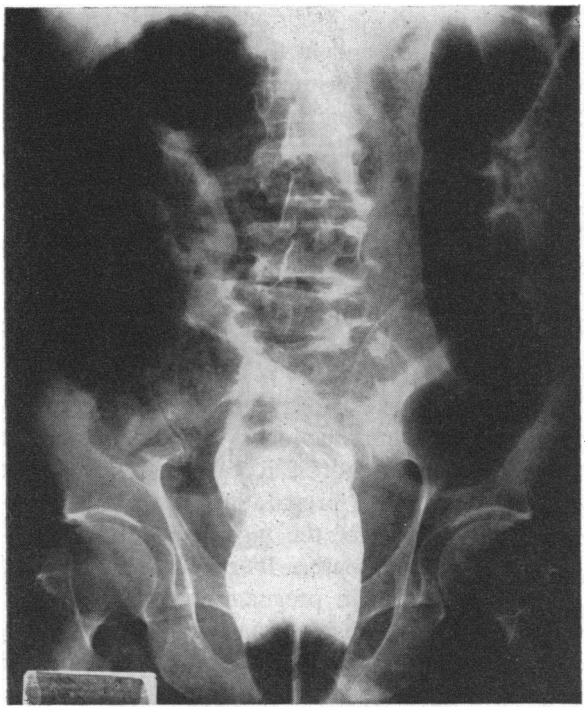

Figure 3.—Colo-colic intussusception due to large bowel tumor (malignant).

eral loose stools. The pains continued intermittently until admission.

On examination the patient was observed to be obese and apparently not in acute distress. Rectal temperature was 37.5°C (99.6F), pulse 92, respirations 20 and blood pressure 180/80 mm of mercury. The abdomen was slightly distended and generalized muscle guarding was evoked. Rebound tenderness was noted in the right lower quadrant. No masses were felt and no abnormalities were observed on rectal examination. Hemoglobin content was 10.5 gm per 100 ml of blood. Leukocytes numbered 10,800 per cu mm—74 percent polymorphonuclear cells, 21 percent lymphocytes, 3 percent monocytes and 2 percent eosinophils. There was a trace of occult blood in the stool. The clinical impression was possible acute appendicitis, with carcinoma of the cecum to be ruled out.

X-ray studies of the abdomen showed a mild generalized increase in small bowel pattern of a nonspecific nature. A similar examination two days later showed findings compatible with small bowel obstruction, and studies with barium enema the following day revealed a filling defect at the ileocecal valve which "may represent an intussusception."

At operation an ileocecal intussusception with the head of the intussusceptum extending 3 inches into the colon was observed. A 3.5 cm ileal polyp on a long pedicle led the intussusceptum into the colon and was lying in the cecum. There was a Meckel's diverticulum 15 cm proximal to the intussusception. The intussusceptum was gangrenous. After partial reduction of the intussusception, a segmental ileal resection, a Meckel's diverticulectomy and end-to-end anastomosis were carried out. On pathologic examination the lesion leading the intussusceptum was described as inflammatory mucosal polyp.

The postoperative course was complicated by an incisional abscess and watery diarrhea which lasted several days.

CASE 3.—A 65-year-old Caucasian man was admitted to hospital 3 July 1967 with a history of diarrhea with bloody stools for six days. Until then he had had alternating constipation and diarrhea for two months. The past history was not contributory.

The patient appeared fairly well-nourished and seemed to be in no acute distress. Rectal temperature was 37.5°C (99.6F), the pulse rate 96, respirations 20 per minute and blood pressure 150/80 mm of mercury. The abdomen was moderately distended and tympanitic to percussion. There was no rigidity, and no masses were felt. Mild tenderness was elicited in the right lower abdominal quadrant. The bowel sounds were hyperactive. Rectal examination revealed a 5 to 7.5 cm soft, round mass filling the rectal ampulla 5 cm above the anal verge. There was dark blood on the examining finger

Laboratory studies: Hemoglobin was 13.1 gm per 100 ml and leukocytes numbered 11,500 per cu mm—71 percent polymorphonuclear cells, 18 percent lymphocytes and 11 percent monocytes.

X-ray examination of the abdomen showed changes consistent with large bowel obstruction, with the sigmoid colon the site. Barium enema filled the rectal ampulla and demonstrated an area of intussusception near the rectosigmoid junction with the head of the intussusceptum dipping into the rectal ampulla.

At operation the sigmoid colon was found to be intussuscepted into the rectum, and an area of gangrene encircled the bowel. The intussusception was partially reduced in order to perform a sigmoid resection and end-to-end anastomosis. On examination of the surgical specimen a 4 x 2.5 x 2.0 cm "cauliflower" mass attached to the rectum

mucosa was observed to be the cause of the intussusception. Pathologic examination revealed a Grade I papillary adenocarcinoma without stalk invasion.

The postoperative course was uneventful.

Discussion

Unlike pediatric intussusception, which usually comes to medical attention because of an acute episode with clear-cut findings, intussusception in adults often presents with bizarre symptoms of relatively long duration and has been variously diagnosed as appendicitis, ovarian cyst, regional enteritis, renal calculus, and ruptured atopic pregnancy.[1,2]

In only 13.5 percent of a series reported by Dean and coworkers[2] were the first symptoms those of acute intestinal obstruction. One of the three patients reported herein (Case 3) was admitted with a clinical impression of mechanical obstruction of the large bowel, but in Case 1 the symptoms were consistent with peptic ulcer disease and in Case 2 with appendicitis. In a review of the literature—and in our own three cases—the most frequently noted symptoms at the time of first examination were intermittent colicky abdominal pain, increased by eating, and vomiting, diarrhea and loss of weight. Rectal bleeding may or may not be present. Two of the patients in the present report had vomiting and two had diarrhea, one with passage of dark red blood. A deceptive clinical feature is that the patient does not appear acutely ill. None of the three patients we treated had fever. The highest leukocyte count among them was 11,500 per cu mm, and the cell differential was within normal limits. Yet in two of the patients devitalized bowel was observed at operation. This deceptive incongruity was corroborated in other series.[1,6] The most prominent physical symptom is moderate tenderness of the abdomen, sometimes with slight distention. There may be a palpable mass, as was the case of one of our patients, and in some cases a mass may be felt and later disappear.[10] In three series that we reviewed, correct preoperative diagnosis was made in 23, in 29 and in 56 percent of cases. In two of the three cases herein reported, correct diagnosis was made before operation and in the other it was strongly suspected. Early barium contrast studies of the gastrointestinal system can be very helpful in arriving at a correct diagnosis early.[9] Delay in diagnosis and surgical treatment is associated with a decided increase in morbidity and mortality.[1]

Gangrene of the bowel in two of the patients we treated may have been due at least in part to a delay of three days between the time of admission and the barium enema studies that confirmed the diagnosis.

Treatment consists of prompt surgical intervention. Seldom can reduction of hydrostatic pressure be accomplished, but if it can be it should be followed by bowel preparation and surgical exploration because of the high incidence of associated organic disease. Burmeister[11] stressed prompt operation in pregnant women especially, because of the high maternal and fetal mortality associated with delay. Even with prompt surgical intervention, resection rather than reduction is necessary in a high proportion of cases. Resection was done in two of the patients we treated, although as an elective procedure in one of them. If feasible, exploration of the bowel should be carried out, for in a few cases there may be tumors elsewhere than at the site of intussusception. If the patient is severely ill, a temporary ileotransverse colostomy with later resection may be indicated.[1]

REFERENCES

1. Cotlar, A. M., and Cohn, I., Jr.: Intussusception in adults, Amer. J. Surg., 101:114-120, Jan. 1961.
2. Dean, D. L., Ellis, H. F., Jr., and Sauer, W. G.: Intussusception in adults, Arch. Surg., 73:6-10, 1956.
3. MacNab, G. N.: British Surgical Practice, Vol. 5, Butterworth, London, 1948.
4. Wangensteen, O. H.: Intestinal obstruction in, *In* Christopher, F., Editor: Textbook of Surgery, 5th Ed., W. B. Saunders Company, Philadelphia, 1949, pp. 1062-1064.
5. Roper, A.: Intussusception in adults, Surg. Gynec. Obstet., 103: 267, 1956.
6. Deterling, R. A., O'Malley, R. D., and Knox, W.: Intussusception in the adult with emphasis on the retrograde type, Arch. Surg., 67:854-864, Dec. 1953.
7. Dietrick, R. B., and Lee, M. H.: Intussusception: A different clinical entity in Korea, Surgery, 57:651-654, May 1965.
8. Elebute, E. A., and Adesola, A. O.: Intussusception in Western Nigeria, Brit. J. Surg., 51:440-444, June 1964.
9. Schatzki, R.: The roentgenologic appearance of intussuscepted tumors of the colon with and without barium examinations, Amer. J. Roentgen., 41:459-563, Apr. 1939.
10. Bond, M. R., and Roberts, J. B.: Intussusception in the adult, Brit. J. Surg., 51:818-825, Nov. 1964.
11. Burmeister, W.: Intussusception in adult: elusive cause of recurrent abdominal pain, Amer. J. Digest. Dis., 7:360-374, Apr. 1962.